

# Income Taxes and Benefits among Czech Employees: Changes since 1989 and a Cross-National Comparison\*

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In 1993–1995 restricted and more transparent forms of income redistribution replaced the extensive and hidden redistribution under the command economy. Macroeconomic data on the Czech Republic show a very slow decrease in the rate of redistribution (the so-called consolidated tax quota) from the early 1990s to 2002, but a slight increase since then (currently at 38 percent of GDP, slightly below the average of European OECD countries). It is certainly not enough to speak only of averages and aggregates. It is important at the same time to show the redistributive flows and the social identities of taxpayers and benefit recipients. The question is how taxes and benefits interact in shaping household income, and what the net effect of redistribution is.

The attention paid to income redistribution has remained disproportionately low in the Czech Republic compared to Western countries. For instance, *The Institute for Fiscal Studies* (IFS), based in London, publishes regular, extensive reports on tax reforms and their impact on both public and household finances (see the series *The IFS Green Budget*). Despite the efforts pursued by IFS researchers in the early 1990s in joint Czech-British projects on taxation, no comprehensive analysis has ever been attempted in the Czech Republic.<sup>1</sup> Nevertheless, important research on the issue does exist and has been published regularly in *Finance a úvěr – Czech Journal of Economics and Finance*.<sup>2</sup>

Since 2003 the issue of tax reform has been surfacing as a hot political issue. In debates, a typological (model families) approach and examples are applied, instead of utilizing a representative sample of the population. In research, only Ondřej Schneider has calculated the total effect of all taxes (both direct and indirect) and transfers on the distribution of income, us-

\* This research was supported by the grant of the Global Development Network (GDN) No. RRC V-37 titled “How the labor market and earnings affect family income. Disparities in market income and household disposable income in the Czech Republic between 1988 and 2002”.

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<sup>1</sup> See ACE/PHARE Grants “Taxation and the Transition to a Market Economy in Czechoslovakia” (1992–1993) and “Tax Policy during Economic Transition” (1994–1995), both coordinated by Stephen Smith, IFS Deputy Director at the time.

<sup>2</sup> See the thematic issues of *Finance a úvěr – Czech Journal of Economics and Finance* focusing on redistribution (under the guest editorship of this author) 12/2001 and 1/2002. (Articles available on the address: [www.financeauver.org](http://www.financeauver.org).)

ing the *Family Expenditures Surveys* (FES). FES is the only source where taxes levied on consumption can be computed together with direct taxes and social benefits (Schneider – Jelínek, 2001, 2005).

In a continuation of our previous research we use here income surveys (Microcensus) to show the joint effect of taxes and transfers on the distribution of household income. The paper is organized as follows: In the first part, data, samples and indicators are presented and explained. In the second part, data on Czech employee households are used to analyze the change in redistribution and the relevant factors for the period between 1988 and 2002. In the third part, the Czech Republic is compared with other OECD/EU countries in terms of redistributive flows. In the fourth part, several recent reform proposals for the distribution of income are tested.

## 1. Data, Samples and Indicators

The paper draws on data sets from income surveys conducted in 1988, 1996 and 2002. The advantages of income surveys are their considerable size and their representativity, but one disadvantage is in their infrequency. The original four-year interim has not been repeated since 1996. Another disadvantage is that information on taxes and certain social benefits is not solicited from households or collected from official bodies. Instead, the information is imputed by statisticians using data on household income and composition. This kind of information is important if one is seeking to examine the system, but it is less relevant for an assessment of how it functions in society.

Collecting household-income data is much more complicated for the period after 1989 than before. Under the command regime, the refusal rate for participation in surveys was low, because even if a survey was not expressly designated as compulsory, people were afraid to refuse to comply with any official enquiry. In particular, the most important sources of income were directly transferred by the state administration – the wages of individual workers were passed on by their employers and pension benefits were reported by the post offices that distributed them. Consequently, income surveys were very reliable with regard to formal income sources and the visible part of redistribution.

Since 1989, all income data have been self-reported, if not imputed by statisticians. Unlike the previous situation, where the only income-provider was the state and the structure was quite simple, there are now countless actors and entities that function as sources of income. Since 1990, the share of earnings from state-dependent activities has decreased, while the share of income from self-employment and entrepreneurship has been rising. Instead of uniformity, we are now presented with a wider variety of economic statuses and also their combinations, such as a mixture of dependent full-time employment and independent part-time employment.

The growing obstacles to income inspection is illustrated in the three income surveys cited here (*Table 1*). The coverage of surveyed income in comparison with the calculations of *National Accounts* has decreased substantially, despite corrections made by statisticians after the collection of data. However, such problems are quite common in income surveys.<sup>3</sup> Neverthe-

TABLE 1 Characteristics of Income Surveys

Characteristic	1988	1996	2002
Targeted percentage of households	2	1	0.25
Survey sample (no. of households)	69,912	27,314	7,678
Non-response rate in percentage of households	4.2	23.8	28.2
<i>Disposable income per capita (thousands CZK yearly) according to:</i>			
– income surveys <sup>a</sup>	22.3	63.5	92.9
– aggregate statistics <sup>b</sup>	25.9	83.5	122.4
<i>Coverage of income surveys in comparison to aggregate statistics</i>			
	86.1	76.0	75.9

Notes: <sup>a</sup> Income per capita is weighted by persons.

<sup>b</sup> Data of the *Balance of Incomes and Expenditures of the Population* in 1988 and *National Accounts* in 1996 and 2002.

Sources: Microcensus surveys; Statistical Yearbooks; Czech National Bank

less, despite these shortcomings, income surveys carried out by the Czech Statistical Office constitute the best, if not the only, representative source of information on household incomes in this country.

Information on income, taxes and benefits is never fully reliable. In income surveys, taxes are often imputed by statisticians using incomes reported by respondents as a base – this is also the case of Czech income surveys. However, in reality, many business-license holders attempt to “optimize” their taxes by under-reporting income and inflating expenses. This behaviour is indicated in aggregate tax data, according to which contributions to social and health insurance paid by employees are about three times higher than contributions from the self-employed (Pelc, 2000).

Evidence relating to social benefits is better, as the figures for social benefits are usually imputed according to entitlements derived from the composition and economic situation of a household. There are, however, other factors which distort the information: on the one hand there is the fraudulent receipt of benefits, and on the other the non-take-up of benefits. In a Czech survey conducted by the *Public Opinion Research Centre* (CVVM), close to one-third of low-income households report that they do not know how to seek individual benefits. While payments of child benefits exceed 90 percent of entitlements, payments of social contributions and housing contributions have much lower shares (Mareš, 2001).

For the *cross-time comparison* presented in the second section of the paper, only households of non-agricultural employees are selected (Table 2). There are various reasons for this decision. The first is that before 1989 only employees paid wage tax and no important category of the self-employed existed.<sup>4</sup> The second is that, as the tax amounts are imputed by

<sup>3</sup> According to the LIS study (Atkinson – Rainwater – Smeeding, 1995) the ratio of survey estimates to *National Accounts* estimates ranged from 77 percent (Germany in 1981) to 92 percent (Canada in 1981).

<sup>4</sup> Various other income-tax categories for individuals, e.g. self- or independently employed, were not included in the statistical survey. Under the previous regime, contributions to social and health insurance were included partly in the wage tax, but their larger portion was paid by employers in lump-sum payments (50 percent of the wage fund).

TABLE 2 Characteristics of Samples Used (incomes per household in thousand current CZK yearly)

Characteristic	All households			Employee households		
	1988	1996	2002	1988	1996	2002
Number of households (thousand) <sup>a</sup>	3,805	3,822	4,054	2,514	2,117	2,009
Number of persons (thousand) <sup>a</sup>	10,155	10,182	10,117	7,569	6,518	5,665
Gross earnings	52,7	161,1	212,2	70,6	227,2	308,8
Personal income tax	8,8	17,6	23,9	12,6	23,6	32,4
Social and health insurance contributions (persons only)	–	16,5	20,6	–	26,6	36,5
Social benefits (without pension benefits)	5,1	9,4	15,0	6,8	12,0	15,5
Pension benefits	10,5	32,6	49,4	4,9	12,0	18,1
Disposable household income	59,5	169,0	232,1	69,7	200,8	273,5

Note: <sup>a</sup> figures after re-weighting for the entire Czech population

Source: Microcensus surveys

statisticians, there is no such distortion of results as that in the case of the self-employed, who largely use the possibility to deduct various costs from the tax base. No evidence of deductions is available in income surveys. Inclusion of the self-employed – provided we would have “true” data – would certainly diminish the overall tax burden but probably not strengthen its progressivity.

The other concepts are shaped in the following way:

- Income decile groups are formed by ranking according to equivalized household disposable income using the square root of the number of persons in the household weighted by household size. This kind of adjustment corresponds to the OECD approach, taking into account economies of scale to a reasonable degree (Förster, 2004).
- Only direct taxes were considered, i.e. wage tax in 1988 and personal income tax together with mandatory contributions to health and social insurance paid by employees in 1996 and 2002. Relative tax is computed as the percentage of tax and contributions in gross household income.
- Social benefits are computed without pension benefits. Relative benefits are computed as the percentage of social benefits in net household income.
- The summary effect is computed as social benefits minus taxes and contributions in percentages of gross household income.<sup>5</sup>
- When comparing the reduction of gross household income by taxes and benefits (see Table 3), the gross household income encompasses gross wages and other earnings, family benefits and pensions.

For the cross-country comparison analysis presented in the third section of the paper, we were bound by the rules adopted by the OECD and the *European Community Household Panel* (ECHP) calculations:

- For the *OECD comparison*, the population is that of working age, which was set as 18–64 years of age. Again, decile groups are formed by ranking according to equivalized household disposable income using the square root of the number of persons in the household and weighted by household size. Social benefits are computed as family transfer income not

<sup>5</sup> In fact, our “summary effect” is just a mirror figure of the average effective tax rate (AETR), as has been calculated by many authors.

including pension benefits. The summary effect (benefits minus taxes) is calculated from means in deciles.

- For the comparison based on *ECHP data*, all households were included, due to the limited availability of more specified data for other countries. Household income for computing deciles is adjusted to an equivalent unit, which is computed according to the modified OECD equivalence scale and weighted by persons. The summary effect is computed as benefits (including pensions in this particular case) minus taxes and contributions in percentages of gross household income.

For estimating the distributional effect of various tax reform proposals, we made the following additional selections and adaptations:

- From non-agricultural employees' households, only those were selected where there are at least one and at most three economically active persons; the reason for this is that only three persons could be fully identified regarding their earnings.
- Household income for computing deciles is gross income before tax and contributions.
- To avoid any bias of computations, households must have non-zero income from earnings and zero income from self-employment. The sub-sample is thus smaller than in cross-time comparison; concretely speaking, it amounts to 1,877 thousand households, which equals 46 percent of all households and 68 percent of households with economically active persons.
- The "bracket creep" (the fact that with rising nominal income, unchanged policies lead to a rise in the tax burden over time) is not taken into account.
- No indexation for income increase after 2002 is made.

## 2. Changes in Relative Taxes and Benefits

The systems of redistribution before and after 1989 differ greatly. Average taxation in employee households rose by about five percentage points from 1988 to 1996. The new system made taxation steeper. While the tax for the lowest decile changed only very little, the tax for the top decile increased by 8 percentage points up to one-quarter of gross income (*Table 3*). In another perspective, while in 1988 households belonging to the top quintile paid one-third of all taxes, this figure had already reached 41 percent in 1996 and 43 percent in 2002 (*Table 4*). Compared to the earlier system, which was extremely flat, taxation turned more progressive. This occurred despite the fact that the majority of the population fall within the two lowest income-tax brackets.

Between 1988 and 2002, the share of transfer income (not including pension benefits) in the net income of employee households decreased by about five percentage points. Due to targeting introduced by the reform of social benefits in the mid-1990s, the new distribution of transfer income is much more differentiated now than it was before 1990. Starting from the second income decile households were increasingly hit by benefit reductions. While the lowest quintile received one-quarter of all transfer income in 1988, this share rose to more than one-third in both 1996 and 2002. In contrast, the top

TABLE 3 Average Taxes, Social Benefits and Their Summary Effect by Income Deciles (%)

Income decile	Taxes			Social benefits			Summary effect		
	1988	1996	2002	1988	1996	2002	1988	1996	2002
1	10.9	12.1	11.9	24.0	26.0	26.0	10.4	10.7	11.0
2	12.1	14.7	14.3	21.0	17.6	16.3	6.3	0.4	-0.2
3	13.1	15.9	15.5	17.3	13.7	13.0	1.9	-4.4	-4.5
4	13.8	17.0	16.7	14.9	10.2	9.2	-1.0	-8.6	-9.0
5	14.3	17.9	17.9	13.0	7.7	6.5	-3.1	-11.5	-12.6
6	14.9	18.8	18.4	11.2	6.3	5.7	-5.3	-13.7	-13.7
7	15.2	19.6	19.4	9.6	4.7	4.5	-7.0	-15.9	-15.8
8	15.7	20.3	20.0	8.0	3.8	4.2	-9.0	-17.3	-16.6
9	16.4	21.6	21.9	6.7	2.4	2.3	-10.8	-19.7	-20.1
10	16.9	24.5	25.2	4.9	1.4	1.3	-12.8	-23.4	-24.2
Total	14.8	19.7	19.7	11.5	7.0	6.6	-5.0	-14.1	-14.4
Ratio H:L	1.4	1.6	1.7	2.1	3.7	3.9	—	—	—

Notes: Only households of non-agricultural employees are included. Household income is adjusted to an equivalent unit, which is computed as the square root of the number of persons and weighted by persons. Relative tax is computed as the percentage of income tax and social contributions in gross household income. Relative social benefits are computed as the percentage of social benefits in net household income. The summary effect is computed as benefits minus taxes in gross household income and calculated from means in deciles.

Source: Microcensus surveys

TABLE 4 Shares of Taxes and Social Benefits by Deciles (%)

Income decile	Taxes			Social benefits			Summary effect		
	1988	1996	2002	1988	1996	2002	1988	1996	2002
1	3.9	2.8	2.8	11.6	18.3	19.9	-11.1	-3.4	-3.6
2	5.8	4.5	4.3	13.3	16.0	15.6	-9.0	-0.2	0.1
3	7.1	5.6	5.4	12.3	14.2	14.0	-3.0	2.2	2.1
4	8.2	6.6	6.6	11.5	11.5	11.2	1.8	4.6	4.9
5	9.1	7.6	7.5	10.8	9.4	8.2	5.9	6.9	7.2
6	10.1	8.9	8.8	9.8	8.6	8.2	10.7	9.1	9.0
7	11.0	10.4	10.3	8.9	7.0	7.1	15.1	11.8	11.5
8	12.3	12.2	11.8	7.9	6.3	7.4	20.9	14.5	13.4
9	14.2	15.1	15.5	7.3	4.6	4.6	27.9	19.3	19.5
10	18.1	26.3	27.2	6.6	4.1	3.7	40.8	35.2	36.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: See Table 3.

Source: Microcensus surveys

quintile in 1996 and 2002 received less than one-third of its previous share. This change is also due to the changing demographic composition of upper-income categories, in which there are fewer children.

Due to these two opposing shifts, the summary effect of redistribution was considerably boosted. The total “net loss” of employee households has tripled. While in 1988 the lower third of households were the net recipients of income transferred from the upper half, in 1996 and 2002 only the bottom decile gained. At the other end of the income ladder, the net tax burden doubled. The difference in percentage points between the bottom and top deciles increased from 27 in 1988 to 43 in 1996 and 45 in 2002. Due both to tax progressiveness and the targeting of benefits, the degree of redistribution according to relative income has intensified.

Obviously, incomes after redistribution are much more equitable than before redistribution, and as a result the system after 1990 has a stronger

TABLE 5 Household Income before Redistribution (Market) and after Redistribution (Disposable) (%)

Income decile	1998		1996		2002	
	Market	Disposable	Market	Disposable	Market	Disposable
1	53.3	55.7	45.2	49.4	46.3	50.8
2	70.9	73.2	60.1	63.9	59.3	63.3
3	80.7	82.3	69.3	72.6	68.2	71.8
4	88.2	89.3	76.1	78.6	77.6	80.5
5	94.7	95.3	84.0	85.9	82.4	84.2
6	100.7	100.6	93.6	94.6	93.7	95.2
7	107.5	107.0	104.6	104.7	104.5	104.9
8	116.2	115.0	118.0	117.0	116.4	116.0
9	128.8	126.5	137.9	134.6	139.1	135.3
10	159.1	155.2	211.4	198.7	213.1	198.5
Average	100.0	100.0	100.0	100.0	100.0	100.0

Notes: Only households of non-agricultural employees are included. Household income is adjusted to an equivalent unit, which is computed as the square root of the number of persons and weighted by persons.

Source: Microcensus surveys

TABLE 6 Regression Analysis of Relative Taxes and Social Benefits

Factor	Taxes			Social benefits			Summary effect		
	1988	1996	2002	1988	1996	2002	1988	1996	2002
<i>Pearson correlation coefficients:</i>									
Household income	0.82	0.92	0.89	0.17	-0.12	-0.11	-0.43	-0.85	-0.81
No. of active earners	0.66	0.40	0.44	0.11	-0.14	-0.08	-0.38	-0.40	-0.41
No. of children	-0.07	-0.06	-0.01	0.76	0.38	0.40	0.56	0.18	0.15
Age of the head	0.14	0.13	0.09	-0.38	-0.29	-0.17	-0.35	-0.21	-0.17
<i>Standardized regression coefficients:</i>									
Household income	0.76	0.96	0.90	0.04*	-0.12	-0.13	-0.49	-0.88	-0.82
No. of active earners	0.16	-0.06	-0.01*	0.02*	-0.04	-0.01*	-0.10	-0.04	0.00*
No. of children	-0.27	-0.08	-0.08	0.72	0.54	0.40	0.67	0.25	0.21
Age of the head	-0.09	-0.03	-0.04	-0.06	-0.09	-0.05*	-0.02*	-0.04*	0.02*
$R^2$	0.74	0.85	0.80	0.58	0.35	0.18	0.62	0.78	0.70

Notes: Only households of non-agricultural employees included. Household income is not adjusted and not weighted by persons. Relative tax is computed as the percentage of income tax and social contributions in gross household income. Relative social benefits are computed as the percentage of social benefits in net household income. The summary effect is computed as benefits minus taxes in percentages of gross household income.

All coefficients except those marked by \* are significant at the level <0.001.

Source: Microcensus surveys

equalizing effect than before. However, because gross (market) household income is now more differentiated, resulting disposable income distribution is less equal than it was at the end of the communist regime (*Table 5*). While in 1988 households that fell into the lowest income decile had only about 5 percent higher relative income after transfers, the increase amounted to 11 percent in both 1996 and 2002.

Not only disparities in taxation and benefits have shifted, but the factors determining them have changed too, and therefore, so has the whole structure of redistribution. The regression analysis in *Table 6* measures the effect of variables such as household income and the size and composition of households. Owing to the multicollinearity (particularly between the num-



ber of wage earners and household income) the results must be viewed with reservation.

Regarding taxes, the new system stresses the effect of original (gross) household income and diminishes the effect of the number of active earners and children. In fact, only household income remained important for the amount of tax and contributions after 1989. Although tax allowances for dependent children have been retained, their effect is suppressed by mandatory insurance contributions, which are simply derived from earnings. Indeed, if income tax alone is regressed the same way, the standardized regression coefficient for the number of children increases to -0.12 and for the number of economically active members to -0.11.

Important changes have also occurred in the case of social benefits. While before 1989 they had no relationship to family income and were determined solely by the number of children, the effect of targeting is apparent in 1996 and even more so in 2002. While the strength of the determination of overall taxing remained almost the same and that of the determination of transfer income decreased substantially, regression analyses of the summary effect suggest the same degree of determination with a completely different structure: while the effect of household income almost doubled, the effect of the number of children was reduced to about one third.

### 3. Taxes and Benefits in OECD Countries

In the transition countries of Central and Eastern Europe the extent of the overall redistribution has substantially decreased in connection with the market transition and economic reforms. In the former Czechoslovakia the rate of redistribution as a percentage of GDP was estimated at 70 percent, in Hungary and Poland at 50–60 percent (Newbery, 1995). Economic reforms contracted the tax quota up to (or below) 40 percent in all of these countries (OECD, 2004). The Czech tax structure has several specific features (Bronchi – Burns, 2000). Compared with the EU average, personal income tax is rather low in the Czech Republic, but contributions to social and health insurance are high.

Taken separately, the national systems of taxes and benefits differ considerably. Therefore, it is not easy to grasp the summary redistributive effect on household income. Furthermore, the approach and the methods also matter. Most often, the so-called model family or typological approach is used, where the redistributive effect of taxes and social benefits is calculated for household situations according to typical family composition and average wage level. In OECD tax equations an industrial worker with an average wage is used as the starting point, with variations in the family situation, such as economic activity, spouse's earnings, and the number of children.<sup>6</sup>

A better approach, one closer to reality, is based on representative surveys. Such types of comparative analyses have been conducted or commissioned by the OECD. In one method local experts compiled standardized tables based on national income surveys (Förster, 2000), (Förster – d'Ercole,

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<sup>6</sup> See OECD series *The Tax/Benefit Position of Employees and Taxing Wages*.



TABLE 7 Distribution of Taxes and Social Benefits in Selected OECD Countries by Income Quintiles around 2000 (%)

Country	Taxes				Social benefits			
	bottom quintile	six middle deciles	top quintile	ratio 3:1	bottom quintile	six middle deciles	top quintile	ratio 4:6
	1	2	3		4	5	6	
Czech Republic	3.6	48.2	48.2	13.4	42.3	50.1	7.6	5.6
Austria	.	.	.	.	28.8	59.7	11.5	2.5
Belgium (1995)	1.3	49.4	49.3	37.9	27.4	59.4	13.2	2.1
France	7.0	37.6	55.3	7.9	33.5	56.3	10.2	3.3
Germany	3.3	52.1	44.6	13.5	28.0	56.6	15.4	1.8
Ireland	2.0	50.4	47.6	23.8	34.2	55.1	10.6	3.2
Italy	3.3	47.7	48.9	14.8	20.8	57.9	21.2	1.0
Hungary	.	.	.	.	25.5	56.7	17.8	1.4
Netherlands	5.8	54.2	39.9	6.9	47.1	45.6	7.4	6.4
Sweden	6.1	52.8	41.2	6.8	33.0	55.7	11.4	2.9
UK	2.5	48.1	49.5	19.8	62.2	35.5	2.4	25.9
USA	1.8	41.1	57.1	31.7	33.6	50.9	15.5	2.2

Notes: Households with head in working age, set at 18–64 years of age. Household income is adjusted to an equivalent unit, which is computed as the square root of the number of persons and weighted by persons.

Source: (Förster – d’Ercole, 2004)

2004). Another method had the researchers themselves analyze redistributive flows comparatively, taking advantage of the databases of national income surveys archived and standardized in the *Luxembourg Income Study* (LIS) (Atkinson – Rainwater – Smeeding, 1995), (Ervik, 1998). The data of the *European Community Household Panel* (ECHP) was used by EUROMOD staff in the same way (Immervoll, 2002).

Here we are using two main sources for comparison. The first is the last OECD study in which Czech data also appeared for the first time (Förster – d’Ercole, 2004). The second is the database of ECHP data available through the EUROMOD database. In both cases, we computed the Czech figures using data from the Microcensus 2002.

Table 7 presents the distribution of taxes and benefits among the working age population in selected OECD countries by quintiles. There are some countries where taxation of the bottom income quintile is close to zero, which makes the steepness of taxation extreme – this is in liberal countries such as the USA, the UK and Ireland, but also even in “welfarist” Belgium. At the other end of income distribution, liberal and “welfarist” countries converge – the top income quintile of households pays about 55 percent of all taxes and contributions in France and 57 percent in the USA. The Czech Republic ranks among the countries where the relative burden of the top quintile is large, though not the biggest of all the countries. Alongside the liberal countries, similar shares are also exhibited by Italy and, to a slightly lesser extent, Germany.

The distribution of benefits is generally much flatter than that of taxes, with the exception of the UK. Nevertheless, the Czech Republic displays quite high targeting in the bottom income quintile, which takes up 42 of all non-pension benefits. The situation is similar in the Netherlands, while in

TABLE 8 Summary Effect of Redistribution by Income Deciles in Selected EU Countries around 2000 (%)

Country	1	2	3	4	5	6	7	8	9	10	Total
Czech Republic	40.8	9.8	0.5	-4.2	-5.9	-9.2	-13.1	-15.3	-17.5	-22.7	-10.1
Austria	158.6	64.5	41.3	27.0	5.3	6.8	-1.4	-8.4	-14.6	-14.8	2.7
Belgium	287.8	107.4	42.5	17.4	0.9	-12.1	-17.4	-24.9	-28.8	-34.7	-12.7
France	96.0	63.3	38.3	27.7	22.4	11.0	5.6	2.4	-0.2	-13.6	6.8
Germany	190.4	70.4	31.0	24.6	4.4	-5.7	-11.2	-13.4	-23.2	-27.5	-7.2
Ireland	999.9	361.4	124.9	53.3	28.0	3.5	-3.4	-9.4	-16.1	-25.4	1.0
Italy	40.9	68.7	34.4	23.5	16.8	12.5	3.5	-2.0	-8.8	-16.7	0.3
Netherlands	122.5	75.0	22.3	-0.1	-7.4	-13.6	-16.1	-18.9	-21.9	-28.8	-12.0
Sweden	97.1	119.1	71.9	10.8	-3.1	-12.0	-15.9	-21.6	-26.2	-34.8	-11.2
UK	368.8	164.2	87.6	39.3	12.4	1.1	-10.4	-16.7	-20.8	-27.2	-5.5
EU-15	69.2	73.3	58.1	37.1	19.2	6.1	-3.5	-10.0	-16.8	-23.8	-3.6

Notes: All households included. Household income is adjusted to an equivalent unit, which is computed as the square root of the number of persons and weighted by persons. The summary effect is computed as benefits (including pensions in this particular case) minus taxes in percentages of gross household income.

Source: (EUROMOD, 2001) – author's own computations

other countries the distribution of transfers is much more equal across the income ladder. In Belgium and Germany, and also in Hungary and the USA, the top quintile receives a high share, reaching 18 percent in the case of Hungary and 21 percent in the case of Italy.

In *Table 8*, only the summary measure is compared across countries and by income deciles. It is here again defined as social benefits (also including non-private pension benefits) minus income tax and contributions for health and social insurance in percentages of gross household income. The inclusion of the whole of the population makes the calculation incomparable with the above *Tables 3* and *4*. The figures for old member countries were calculated from the ECHP database, and we added Czech data calculated using the 2002 Microcensus.

From this perspective the Czech system appears less redistributive than those in other countries. While Czech figures regarding the upper half of income distribution are quite similar to the EU-15 average, there are important differences regarding the bottom half of income distribution: those households are net recipients in most countries (and the EU-15 average), but in the Czech Republic they are net payers, starting from the fourth decile. The country is located between “socialist” France, where most households appear as net recipients and the taxation of the upper income decile is the lowest among the EU countries, and “socialist” Sweden, where most households are net payers and the taxation of the upper income decile is the highest.

The overall balance of redistribution through taxes, contributions and benefits is also telling. The Czech Republic is among the countries where the “burden” of households is substantially higher than their “benefits” – together with the Netherlands, Belgium and Sweden. In the EU-15 average and in most countries the surplus is much lower, or even negative, as in France, Austria and Ireland. Apparently, there is no exact affiliation of

results to “welfare state regimes” – as they are used in the literature after Esping-Andersen’s (1990) coining the term – and the data also appeals for control of survey data with statistical aggregates.

#### 4. Distributional Effect of Tax Reforms

In previous sections, we dealt with the joint effect of the tax and insurance contributions system on the one hand, and the income transfer through social benefits on the other hand. Now we are focusing on the personal income tax only, as reform proposals do not cover other redistribution channels (insurance contributions, benefits of the state social support scheme). As noted above, a particular feature of the Czech system is the high rate of contributions to social and health insurance. While personal income tax amounted to 12 percent of governmental revenue (about the same as the percentage of corporate tax), contributions of employees and employers amounted to 35 percent in 2003 (Statistical Yearbook of the CR 2004).

When speaking about income inequality, however, we have to take into account that while insurance contributions are arranged as a flat-rate tax (moreover, with no ceilings so far), personal income tax is shaped progressively. Consequently, the weight of both of these in explaining the ratio of household disposable income to its gross market income is about the same but still lower than the effect of social benefits, where distribution is much steeper. There are also important interaction effects we should control in the analysis – the charges of taxes and insurance contributions are balanced by the positive effect of their interaction.

Taking the issue generally, tax reforms could proceed in various ways. The main possibilities are:

- redefinition (mostly an increase) of the zero rate band,
- redefinition of other rate bands by narrowing or expanding them,
- setting different tax rates in selected or all tax bands,
- changing the tax allowances deductible from taxable income, i.e. before the amount of tax payable is calculated,
- introducing or changing tax credits deductible from resulting tax, i.e. after the amount of tax is calculated,
- introducing or changing premiums, such as the “child bonus”, as a refundable tax offset,
- introducing or changing the negative income tax (NIT) as a social benefit to replace or complement other transfer income among low-income households.

In 2005 several proposals for the reform of personal income tax were put forth. The *Civic Democratic Party (ODS)* wants to challenge the currently blurred system by considerably simplifying it and setting a flat-rate tax of 15 percent. Countering this, the government, led by the *Czech Social Democratic Party (ČSSD)* and voiced by the Minister of Finance, Bohuslav Sobotka, has proposed reducing tax in the two lowest bands and replacing deductible allowances with direct tax credits. The governmental proposal was finally enacted and is in force as of the beginning by 2006.

The overview of reforms is presented in *Table 9*. Only the current governmental reform is described in full detail. The ODS flat-rate tax pro-

TABLE 9 Tax Reform Proposals for Personal Income Tax: An Overview (CZK yearly)

Taxable income from	To	Percent	From tax base over	Bonus/NIT
<b>2004 (current state)</b>				
0	109,200	15 %		
109,200	218,400	16,380 + 20 %	109,200	
218,400	331,200	38,220 + 25 %	218,400	
331,200		66,420 + 32 %	331,200	
Tax allowance for payer	38,040			
wife	21,720			
child	25,560			
<b>2005 (child credit and bonus)</b>				
0	109,200	15 %		
109 200	218,400	16,380 + 20 %	109,200	
218 400	331,200	38,220 + 25 %	218,400	
331 200		66,420 + 32 %	331,200	
Tax allowance for payer	38,040			
wife	21,720			
child – tax credit	6,000			bonus 6,000 per child
<b>2006 (governmental reform)</b>				
0	121,200	12 %		
121 200	218,400	14,544 + 19 %	121,200	
218 400	331,200	33,012 + 25 %	218,400	
331 200		61,212 + 32 %	331,200	
Tax credits for payer	7,200			
wife	4,200			
child	6,000			bonus 6,000 per child
<b>ODS 1 (flat rate tax 15 %, SIC 8 % removed, no NIT)</b>				
Tax allowance for payer	72,000			No NIT
child	24,000			
<b>ODS 2 (flat rate tax 15%, SIC 8% removed, NIT included)</b>				
Tax allowance for payer	72,000			NIT 60 %
child	24,000			

posál is not completely clear on the basic tax allowance and its distinction between the taxpayer, his/her partner and children. Also, the negative income tax (NIT) could be specified – here we defined it uniformly at a level 60 percent, according to the *Blue Chance* programme. The variant of tax allowances we apply was quoted by the ODS's shadow Finance Minister, Vlastimil Tlustý, as the most probable combination in an interview on Czech Radio broadcast on 12 June 2005.

Using definitions, we applied the proposals to the Microcensus 2002 dataset, more specifically to a sub-sample of employee households described in section 1 of the article. To avoid any bias in the computations, households had to have non-zero income from earnings and zero income from self-employment. The sub-sample is thus smaller than reported in Table 2 specifically it amounts to 1,877 thousand households, which equals 46 percent of all households and 68 percent of households with economically active persons. As no indexation of incomes was made, bracket creep is not taken into

TABLE 10 Reform Proposals: Tax Averages by Deciles of Household Gross Income (%)

Income decile	2004	2005	2006	ODS 1 (15 %)	ODS 2 (NIT)
1	2.7	2.6	1.1	1.6	-10.9
2	5.5	5.3	2.9	4.2	2.4
3	6.4	5.9	4.5	5.3	4.5
4	7.2	6.8	5.4	5.9	5.6
5	7.5	7.1	5.4	5.3	5.3
6	8.3	7.8	6.6	5.5	5.5
7	8.5	8.1	6.7	5.5	5.5
8	9.5	9.2	8.0	6.6	6.6
9	10.7	10.5	9.8	8.0	8.0
10	14.5	14.5	14.7	10.3	10.3
Average	9.8	9.5	8.6	7.0	6.4

*Notes:* Only households of non-agricultural employees with at least one and at most three economically active persons are included. Households must have non-zero income from earnings and zero income from self-employment. The bracket creep and possibility of joint taxation of couples are not taken into account and no indexation for income increase after 2002 is made. Household income for computing deciles is defined as gross labor income before tax and contributions and it is not weighted by persons.

*Source:* author's own computations using the Microcensus 2002 household file

TABLE 11 Reform Proposals: Tax Shares by Deciles of Household Gross Income (%)

Income decile	2004	2005	2006	ODS 1 (15 %)	ODS 2 (NIT)
1	0.8	0.8	0.4	0.7	-5.1
2	2.6	2.6	1.6	2.8	1.7
3	3.8	3.5	3.0	4.4	4.0
4	5.1	4.9	4.4	5.8	5.9
5	6.2	6.0	5.1	6.2	6.6
6	8.1	7.7	7.1	7.5	8.1
7	9.5	9.3	8.5	8.5	9.3
8	12.4	12.4	12.0	12.0	13.1
9	16.7	16.9	17.5	17.4	18.9
10	34.7	35.9	40.5	34.7	37.7
Total	100.0	100.0	100.0	100.0	100.0
RH Index	33.8	35.2	30.0	34.1	39.7

*Note:* See Table 10.

*Source:* author's own computations using the Microcensus 2002 household file

account in the computations, nor is behavioral change. The deciles are computed on the basis of total earned household income; no weighting by persons or equivalence units is applied.

In *Tables 10* and *11*, we first show the averages of personal income tax and then the distribution of overall tax collected. For comparison, the situation in 2004 (but still on 2002 income data) is taken as a benchmark. Then the new arrangement introduced in 2005 is shown, with the tax credit and bonus for children. The estimates of tax distribution following the use of three other variants of the tax reform are presented in the remaining columns.

All reform proposals should lead to a decrease in the tax burden, the most radical being a combination of the flat tax and the negative income tax (NIT) for the lowest categories. This variant is also the most advantageous for

TABLE 12 Resulting Increase of Disposable Household Income (CZK)

Income decile	Original 2004	2005	2006	ODS 1 (15 %)	ODS 2 (NIT)
1	108,849	77	2,556	1,965	5,351
2	151,981	233	2,660	2,013	5,451
3	181,239	526	3,517	2,642	4,932
4	205,583	982	3,865	3,708	5,683
5	231,309	1,097	4,637	5,314	7,448
6	256,777	1,310	4,894	6,810	7,993
7	286,332	1,368	5,338	8,795	9,490
8	322,950	875	4,264	9,230	9,595
9	373,536	983	3,964	12,239	12,285
10	552,314	-145	-1,041	27,286	27,452
Total	266,950	708	3,444	8,011	9,548

Note: See Table 10.

Source: author's own computations using the Microcensus 2002 household file

households in the first decile, which should be the largest recipient of contributions from NIT benefits. There are also marked differences at the top of income distribution. While the 2005 change and governmental reform do not bring any benefit to the tenth decile (and only a small benefit to the deciles below it), the ODS proposals bring a substantial advantage of up to five percentage points for the top decile.

In Table 12, we display the effect of various tax proposals in income distribution in absolute terms. First, we show the absolute gain/loss in the individual deciles of the "original" gross household income. There is a difference between governmental reform, which is more advantageous for lower income categories, and the ODS proposals where the profit increases with increasing income.

However, none of the proposed reforms has a substantial effect on income distribution. Differences in resulting income inequality are indeed negligible. The reason is that the amount of personal income tax relative to household income is too small. Despite the fact that some amounts may appear large, they are rather small relative to the total amount of household income. The maximum profit could reach 5 percent of disposable income, as is the case in the first decile after introducing NIT or in the tenth decile in the ODS proposals.

## 5. Conclusion

The change brought about by the complex reform of taxation and benefit provision in the Czech Republic in the early 1990s has been substantial and has various aspects. Owing to the lack of transparency of redistribution under the command economy, comparisons with the pre-1989 situation are incomplete. Within the limits of information available (only partial for the communist period) it may be said that the state takes more from and gives less to households. In comparison with the situation before 1989, the redistributive effect of the new system is also much stronger.



The progression of taxes and transfers greatly weakens the disparities of market income. Nevertheless, the resulting distribution of disposable household income is still much less equal than it was before 1990. The situations in 1996 and 2002 are quite similar, which corresponds to the maintenance of the tax and benefit system. However, the reduction of income inequality through redistribution is slightly stronger in 2002 compared to 1996. This may be a consequence of the lower number of children in families.

When comparing cross-nationally, the outcome depends on the source and the method. Taking taxes and benefits separately, we can say that the Czech state levies taxes on upper-income households substantially but not extremely, and that the targeting of benefits to low-income families is also very narrow, although not the narrowest. When computing a summary measure, the Czech system appears less redistributive than those in other countries. While Czech figures for the upper half of income distribution are quite similar to the EU-15 average, there are important differences in the bottom half of income distribution: those households are net recipients in the EU-15 average but in the Czech Republic they are net payers.

Personal income tax reforms can affect overall redistribution flows only to a very limited degree, as it corresponds to the weight of the tax in overall flows and taxing and transfers. All proposals aim to reduce the tax burden, in particular for lower income categories. While the “leftist” proposals proceed by means of an increase in tax progression in the name of social solidarity, the “rightist” proposals want to keep taxation for middle and upper income categories flat for the sake of work motivation. However, if a flat tax were combined with the negative income tax, the resulting distance between the burdens of the bottom and the upper income decile categories might indeed be great.

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## SUMMARY

JEL classification: H24, D31

Keywords: Czech Republic; redistribution of income; social benefits; tax system

## Income Taxes and Benefits among Czech Employees Changes since 1989 and a Cross-National Comparison

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Statistical income surveys are used to show the separate and joint effects of taxes and transfers on the distribution of household income among employees in the Czech Republic. On the face of it, the state takes more from and gives less to households. Compared with the situation before 1989, the redistributive effect of the new system is much stronger. In a cross-national comparison, the results depend on the sources and the methods used. When taxes and benefits are taken separately, it can be said that the Czech state taxes upper-income households considerably, but not to an extreme extent, and that the targeting of benefits to low-income families is narrow, though not the narrowest. When a summary measure is applied, the Czech system appears to be no more redistributive than those of other countries. It is found that personal income tax reforms affect redistribution flows only to a very limited degree.